

immediately read to him an account of Dr. Hannover's successful experiments of inoculation on the freshwater salamander, and moreover furnished him with references to other papers on the subject. In return, Mr. Hassall endeavours to turn to account a slight inaccuracy in the note, in order to cover his admitted want of acquaintance with the subject upon which he had been writing.

XX.—*Information respecting Scientific Travellers.*

Details respecting some parts of Mexico and their Vegetation.*

TOWARDS the end of 1840 the Danish government sent to Mexico M. Liebmann, a distinguished botanist, who had been several years preparing for this journey; he was accompanied by a gardener, who was to gather fresh plants and seeds for the botanic garden at Copenhagen. This little scientific expedition seems to succeed well; the gardener is already returned with a rich collection of living plants, amongst which are a hundred and twenty *Orchideæ*. M. Liebmann remains in Mexico and will not return until the spring of next year. The following are extracts from three of his letters, which appear to give full information respecting this country, so favoured by nature, and at the same time so unfortunate.

“ Vera-Cruz, February 21, 1841.

“ I intend to travel with Mr. Karwinsky, a Russian naturalist. The present condition of Mexico obliges those who would explore it to form a party of several together, in order to face the dangers to which the complete demoralization of the population, and the anarchy which everywhere exists, expose the traveller at each moment. It is a sad spectacle to see this fine country given up to universal pillage†. One step further, and all the ties and every law which govern society will have disappeared from it. Throughout nothing is to be seen but deceit and perjury. The interior of the country swarms with thieves, who rob and murder with perfect impunity. The few honest people who still remain bitterly regret the downfall of Spanish domination, and pray for its re-establishment; but what is Spain herself now? The only part of the Mexican people who may still be trusted are the Indians, and we consequently made up our minds as much as possible upon our excursions to make choice of the villages belonging to this nation to take up our abode at.

“ During our fourteen days stay here, we have been almost exclusively occupied with the necessary preparations for our journey. There are at present difficulties to surmount, with regard to this, of which no one can form any idea. Nothing can be obtained without paying extravagant prices; and if we did not reckon upon the hospitality of the Indians, the last remaining virtue that reminds us of

* Extracted from the *Flora*, February 1843, as given in the *Bib. Universelle de Genève*, July 1834.

† The article relating to the journey of Mr. Stephens (*Bibl. Univ.* May 1843, p. 71 and following) contains details no less deplorable respecting the political and moral state of central America and of Yucatan.

the better times which have disappeared, we must be bankrupts. I give some examples of this dearness of all things, which has not diminished in spite of the universal distress which weighs upon the country: wretched mules covered with sores, fifty good piastres each; the keep of the eight which we have bought, costs us here at Vera-Cruz, six piastres a day; we pay sixteen piastres a month to the *mozo* who leads them; an old second-hand Mexican saddle, twenty piastres; a pair of *armas de aqua*, calf-skins attached to the saddle to protect the legs of the rider against rain, and in the woods against thorns, twelve piastres; and the *colchores* and *coquinillos*, kinds of wallet, eight piastres; a hammock, six piastres; a musqueteer, eight; the carriage of a mule's load from hence to Mexico, thirty piastres, &c. &c. Judge from these of the expense to which a traveller must be subjected, whether for his own outlay or in order to forward his collections. For this reason we preferred procuring a sufficient number of beasts of burthen at first, so as not to be obliged to hire fresh mules and conductors in the interior, which would cost us even much more. On account of the insecure state of the country, and of the almost absolute impossibility of joining a long caravan in the steep mountain-passes, it was necessary also to make up my mind to separate myself from the greater part of my baggage and my books, and to leave them at Vera-Cruz; I only keep by me the most indispensable instruments of observation.

“ In two days we set off. We shall pass by Antigua, Papantla, Misantla and Tuzpan; then, crossing the high table lands of the interior, we shall reach the zone of the *Echinocacti* and of the *Melocacti*; thence we shall pass the foot of the volcanoes of Perote and Orizaba on the west.”

“ Xicaltepec, April 9, 1841.

“ We have reached this village in good health after a journey of sixty leagues from Vera-Cruz. The whole of the country we have just passed through is a part of what is called *Tierra caliente*, burning earth: the greater part of our route was across the scorching sands on the sea-coast, and the remainder at a distance of eight or ten leagues from the coast, amongst the low mountains which run parallel to the high mountains of the interior and decline towards the sea, thus forming a series of terraces. The vegetation with which I have become acquainted in this region certainly equals in richness that of the most interesting parts of Peru, and at the same time it is very little known, because the yellow fever which often prevails in this zone, and the insupportable scourge of myriads of all kinds of insects which allow of no rest by night or day, have hitherto kept most naturalists away. I have not yet suffered from the heat of the climate, but my companion took a fever at Colipa, from which, however, he recovered in a week. Colipa, the first Indian village we met with, is ten leagues from the coast, amidst mountains covered with the most magnificent virgin forests of so varied a vegetation, that in a week's time M. Karwinsky made a collection of 100 kinds of hard woods. We remained twenty-seven days in this place, both on account of our rich harvests and because it was impossible to find a dwelling at

Misantla, the centre of the vanilla trade, where we had reckoned on being able to stop.

“Misantla, as to corruption, need not envy the richest mining villages: vanilla has introduced the same demoralization there that the precious metals have brought elsewhere. In all the forests of the hot region where this plant grows, money has hardly any value, and consequently all provisions are without a price. A man has only to go into the woods, as one may say, to gather piastres. It is astonishing to what a price this substance rises in the very place where it is produced. Each pod (gousse) while yet green is paid for at the rate of twelve to eighteen shillings by the first buyer, who then sells it to the merchant at Papantla. A thousand of these pods or capsules are packed together in leaden cases, which are afterwards covered with cedar-wood and sent to Vera-Cruz. And what a difference between the price of vanilla and that of sarsaparilla! Whilst the former costs almost more where it grows than it does in Europe, only three reals (1.15 franc of France) are paid for twenty-five pounds of sarsaparilla; and 180 pounds of this same drug only bring the poor Indian the price for which a single pound is sold in Germany! Yet how much more difficult is it to turn up the earth in order to procure the long roots of this plant, which creep about in the thickest parts of the woods, than to reach out the hand, and so at once to gather fifty pods of vanilla, which each stalk of this orchideous plant bears!

“Mexico is not so poor in species of palms as has hitherto been supposed. That which particularly characterizes the warm region is the *Acrocomia spinosa*, Martius, whose fruit serves as food for the Indians. The cocoa-nut tree grows on the hill-sides, but I have not yet met with it wild. Near the Laguna Verde I have found some magnificent forests of *Sabal mexicanum*, Martius, with trunks forty feet high and as hard as those of our fir-trees. These forests are very picturesque, and especially remarkable from no other kind of tree being mixed with the palms. In the virgin woods over the whole extent of coast we found a magnificent palm, which they here call the *Palma real*. The petioles are nearly fifty feet long; they are extremely hard and have four or five angles; the folioles are linear, ranged in two rows; the trunk is excellent timber; the fruit, which is as large as a plum, serves as food for cattle. In the mountain forests the species of *Chamadorea* prevail, with lank slender stalks and only from four to ten feet high. Along the wild path which leads across the almost impenetrable virgin forests to the village of Xicaltepec, there grows a remarkable new palm, with a stem of a finger's thickness, from ten to twelve feet high, the wood black and excessively hard; the petioles are six feet long, and it is quite covered with sharp black thorns two inches long. We gathered several new *Cycadeæ*. Another family which promises some fine discoveries is that of the *Aroideæ*; they occupy a very prominent part in the physiognomy of the virgin woods; all the trunks of trees are clothed with them. Above all, we find some new and gigantic species of *Caladium* with petioles three feet long, bearing leaves which are sometimes

rounded, sometimes jagged, sometimes pierced with holes. Immense *Pothos* are also parasites on the trees, or spring out of clefts in the rock; in the marshy places numerous species of *Arum* grow, one of which has leaves four feet long and two broad. The difficulty, or rather the impossibility of drying specimens of these plants, is one of the reasons why they are still so imperfectly known."

"Turutlan, May 15, 1841.

Beginning of the rainy season.

"From Santa-Maria of Tlepacojo, situated at twenty leagues from the south of Papantla, in the *Tierra caliente*, it takes only eight or ten hours, mounting to the westward, to cross what is called the *Tierra templada*, or temperate region, and to reach Turutlan, a small town situated at the entrance of the cold region, *Tierra fria*. Nowhere else, I think, could the naturalist observe in so short a space of time vegetation under such different aspects. Although the first village, Santa-Maria, is from eight to nine hundred feet above the sea, and on that account beyond the region of musquitos and those legions of other insects which infest the coast, yet the thermometer rises from 25 to 30 degrees of Reaumur during the day, and the vegetation is quite tropical. We ascend thence across the temperate region as far as the Cordilleras, and the beautiful tree-fern, the *Cyathæa mexicana*, was the first indication that we had left the *Tierra caliente*; magnificent oaks with glossy leaves compose the forests, and many smaller plants remind the botanist of the neighbouring European species. Buildings of stone or of wood take the place of bamboo huts. As we continue to ascend, we meet with the *Liquidambar styraciflua*, the first tree characteristic of the *Tierra fria*; at every step the forms of the vegetables are more like ours, although mixed with a multitude of others peculiar to this country. On the neighbouring heights magnificent forests of pines rise majestically, and the declivities are adorned with shrubs of *Arbutus* and *Vaccinium*, with flowers larger and more beautiful than our species of the same genera, as well as with a *Rhexia* with deep red corymbs.

"The *Alnus Jorullensis*, which greatly resembles the alder of our own country, accompanies the traveller as far as the elevated table lands of the interior. It is here that the aspect of nature suddenly changes, and that we might believe ourselves transported into central Europe: instead of a clear sky we again find the clouds and the grayish tints of our northern regions; fogs veil a part of the plain, and dark clouds rise and descend all day along the mountain-sides. Whilst in the hot region thick forests filled with climbing plants cover the whole face of the country, and the lands cleared by the Indians are merely small spaces where they have set fire to the wood, and where they cultivate just enough maize and beans to subsist on; here, on the table land, as far as the eye can reach, we see well-cultivated fields of the same plants, as well as of other cereals. On heaps of stones laid in the form of dikes grows the *Agave americana* or *Maguay*, which produces the wine of the country; the enclosures are formed of quickset hedges of *Mespilus pubescens* and other shrubs. Apple-trees of a bad sort, the *Prunus Capuli*, a kind of cherry-tree,

whose fruit is somewhat different from ours, and rose-trees covered with innumerable flowers, afford their shade to farm-houses built of stone in the style of the houses of southern Europe, or constructed of timber. A beautiful willow of pyramidal form surrounds the churches, and gives to the villages a picturesque aspect from a distance. Apricot and peach trees grow in the gardens of the peasants. The most important plant of all which are cultivated is the *Sechium edule*, a cucurbitaceous plant whose growth is immense, and which produces in the course of a year a most astonishing quantity of fruit. It surrounds everything about it with its climbing stalks; it often covers entire houses and descends on the other side of the roof. It would without doubt bear our climate, and would be a great resource for the poorer classes. The soil of these table lands is formed of a light sandy clay, yellowish and extremely fertile when not exposed to too long a drought; this clay rests upon a friable grit. The plain is furrowed with deep ravines or *barrancos*, at the bottom of each of which is a water-course; there we find syenite, granite and argillaceous schist, upon which the formations above mentioned repose. Above the plains, to about 2000 feet, there rise heights, for the most part calcareous. The mean temperature of these table lands, at $20\frac{1}{2}^{\circ}$ of north latitude, was in May 13° Reaumur, and the temperature of the soil gave the same result.

“The forest vegetation, which quite disappeared on the table land itself, consists on the heights of different species of fir, of oak and of alder. In the environs of Turutlan, nine different species of the first genus may be counted, two of which are new. The most remarkable are the *Pinus Montezumæ*, *Pinus Teocote*, and especially *Pinus Ayacalmite*, which Ehrenberg first made known a few years ago, whose trunk rises to 120 feet, and whose cones attain the length of from fifteen to sixteen inches. This magnificent tree would doubtless grow in our country, for during the winter months abundant snow falls here in the places where it lives, and the climate is cold and moist all the year. It would be a valuable acquisition on account of its resin, which has an agreeable smell, and which is so abundant that it flows from the cones in limpid drops. These pine woods are also mixed with oaks of five different species, and just as in European forests of this nature, but few herbaceous plants grow under their shade; amongst others a variety of our *Pteris aquilina* and the *Myrica xalapensis*, which takes the place of our *Arbutus Uva-ursi*. In the same way, the *Helianthemum glomeratum* here takes the place of our *Vaccinium Myrtillus* and heath, and amongst its tufts creeps the *Fragaria mexicana*, which much resembles our common strawberry. The *Viscum vaginatum* grows as a parasite on the pine-trees. A quantity of noxious European weeds, amongst others the *Urtica urens*, have accompanied man up to this table land: the sterile and uncultivated lands are covered with a very low underwood of oak and alder, with the *Helianthemum*, *Pteris* and *Myrica* which I have just mentioned, and they have quite the same appearance as regions of similar nature in Europe. A large species of rabbit lives upon these heaths, and is the only wild mammiferous animal of these table lands;

there are also but very few species of birds. If we descend from these sterile plains into the barrancos, we directly find a richer and more luxuriant vegetation.

“The vegetation of the heights, which break the uniformity of the table land, is also very poor in species, but always richer in the gorges than on the declivities. Together with others, amongst the blocks of syenite, we remarked a *Pitcairnia* with red flowers, the *Cereus flagelliformis*, the *Pentstemon fruticosum*, a magnificent new gesneriaceous plant with a unilateral raceme, and having a purple corolla from two to three inches long; two Agaves, two beautiful new *Stachys*, the *Fuchsia arborea*, and other kinds.”

M. Liebmann has subsequently made an excursion to the famous Peak of Orizaba, the height of which is known to be nearly 17,000 feet. He remained fourteen days upon the mountain, in a place called the *Vacuqueria del Jacal*, which is nearly 10,000 feet above the sea. We shall hereafter give an account of this interesting part of his journey.

BIBLIOGRAPHICAL NOTICES.

Narrative of a Voyage round the World. By Capt. Sir E. Belcher, R.N., &c. 2 vols. 1843, London.

To notice the contents of the larger portion of this highly interesting work does not fall within the objects of these ‘Annals,’ but an article appended to the second volume does quite accord with them. The paper to which we refer is of very high interest to the student of botanical geography, and is entitled “The Regions of Vegetation, being an Analysis of the Distribution of Vegetable Forms over the surface of the Globe, in connexion with Climate and Physical Agents,” by Richard Brinsley Hinds, Esq., Surgeon, R.N. The author divides the world into 48 regions of vegetation, of which 10 belong to North America, 7 to South America, 7 to Australia, 7 to Africa, 10 to Asia, 6 to Europe, and 1 is Oceanic. Each of these is considered under five heads: 1. as to its *Extent*; 2. its *Physical Characters*, under which are included accounts of its plains, mountain ranges, rivers, geology and soil; 3. *Climate*; 4. *Flora*; 5. *Relations* with the other regions.

Our space will not allow of going into detail or quoting any portion of this elaborate dissertation, which extends to 136 pages, but we cannot recommend it too strongly to our readers, and must at the same time express our sorrow that it is only to be had as forming a part of so large a work.

Eliæ Fries Novitiarum Floræ Suecicæ Mantissa tertia. 8vo. Lund and Upsal, 1842.

We have recently, through the kindness of its distinguished author, received this third Mantissa to the well-known ‘*Novitiæ Floræ Suecicæ*’ of Fries. It contains 204 pages, and is accompanied by a ge-